IMB-140

User Manual

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see
www.dtsc.ca.gov/hazardouswaste/perchlorate"

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Chapter 1: Introduction

Thank you for purchasing ASRock ***IMB-140*** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website http://www.asrock.com

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp

1.1 Package Contents

ASRock ***IMB-140*** Motherboard
(Mini-ITX Form Factor: 6.7-in x 6.7-in, 17.0 cm x 17.0 cm)
ASRock ***IMB-140*** Driver CD
ASRock **IMB-140** Jumper setting instruction
1 x I/O Panel Shield
2 x SATA HDD cables
1 x SATA Power cable
3 x Serial port cables
1 x Printer cable
1 x USB cable
1 x RJ45 cable
1 x DC-IN cable

1.2 Specifications

Platform	- Mini-ITX Form Factor: 6.7-in x 6.7-in, 17.0 cm x 17.0 cm - All Solid Capacitor design (100% Japan-made high-quality Conductive Polymer Capacitors)
CPU	- Intel® Dual-Core Atom Processor D2550/N2600/N2800□□ - 1 + 1 Power Phase Design - Supports Hyper-Threading Technology (see **CAUTION 1**)
Chipset	- Southbridge: Intel® NM10 Express
Memory	- 2 x DDR3 SO-DIMM slots - Supports DDR3 1066/800 non-ECC, un-buffered memory - Max. capacity of system memory: 8GB (see **CAUTION 2**)
Expansion Slot	- 1 x PCI slot
Graphics	- Intel® GMA 3600 Series - Pixel Shader 2.0, DirectX 9 - Three VGA Output options: D-Sub, LVDS and HDMI (see **CAUTION 3**) - Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz - Supports LVDS with max. resolution up to 1920x1200 @ 60Hz - Supports HDMI 1.3a Technology with max. resolution up to 1920x1200 @ 60Hz - Supports HDCP function with HDMI port - Supports Full HD 1080p Blu-ray (BD) / HD-DVD playback with HDMI port
Audio	- 2 CH Audio (Realtek ALC662 Audio Codec)
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Realtek RTL8111E - Supports Wake-On-LAN - Supports LAN Cable Detection - Supports Energy Efficient Ethernet 802.3az - Supports Dual LAN - Supports PXE
Rear Panel I/O	I/O Panel - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port - 2 x Com Ports - 1 x RJ-45 Com Port - 1 x D-Sub Port - 1 x HDMI Port

	- 4 x Ready-to-Use USB 2.0 Ports - 2 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) - HD Audio Jack: Line out/Microphone
Connector	- 2 x SATA2 3.0 Gb/s connectors, support NCQ, AHCI and Hot Plug functions - 1 x Print Port header - 3 x COM port headers - 1 x LVDS Connector - 1 x Digital I/O header - 1 x Panel brightness and speaker volume control connector - 1 x Panel backlight invertor connector - CPU/Chassis FAN connector - 4 pin 12V power connector - 1 x Output power connector - Front panel audio connector - 2 x USB 2.0 headers (support 3 USB 2.0 ports)
BIOS Feature	- 16Mb AMI UEFI Legal BIOS with GUI support - Supports “Plug and Play” - ACPI 1.1 Compliance Wake Up Events - Supports jumperfree - SMBIOS 2.3.1 Support
Support CD	- Drivers
Unique Feature	- Hybrid Booster: - ASRock U-COP (see **CAUTION 4**) - Boot Failure Guard (B.F.G.)
Hardware Monitor	- CPU Temperature Sensing - Chassis Temperature Sensing - CPU/Chassis/Power Fan Tachometer - CPU/Chassis Quiet Fan (Allows Chassis Fan Speed Auto-Adjust by CPU Temperature) - CPU/Chassis Fan Multi-Speed Control - Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore
OS	- Microsoft® Windows® 7 32-bit compliant
Certifications	- FCC, CE, WHQL

* For detailed product information, please visit our website: http://www.asrock.com

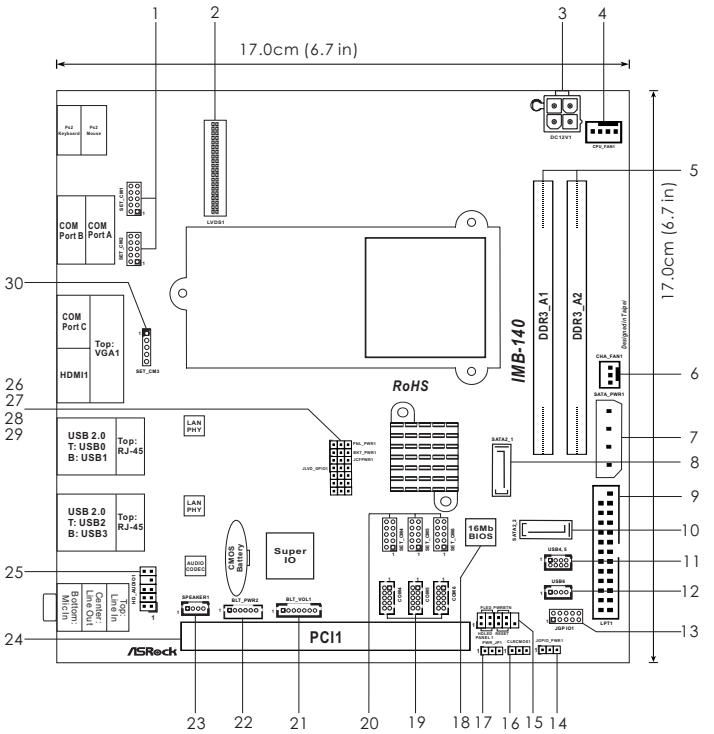
WARNING

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

CAUTION!

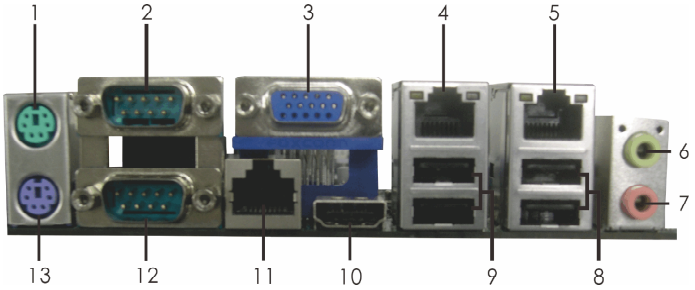
1. About the settings of "Hyper Threading Technology", please check page 30.
2. Due to the operating system limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 7 32-bit.
3. You can choose to use two of the three monitors only. D-Sub, LVDS and HDMI monitors cannot be enabled at the same time.
4. While CPU overheat is detected, the system will automatically shutdown. Before you resume the system, please check if the CPU fan on the motherboard functions properly and unplug the power cord, then plug it back again. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.

1.3 Motherboard Layout



1	SET COM Ports 1,2 (SET_CM1,2)
2	LVDS Con (LVDS1)
3	4-Pin DC PWR (DC12V1)
4	CPU Fan Connector (CPU_FAN1)
5	2 x DDR3 DIMM Slots
6	Chassis Fan Connector (CHA_FAN1)
7	Output Power (SATA_PWR1)
8	SATA2 Connector (SATA2_1, Blue)
9	Printer Port Header (LPT1)
10	SATA2 Connector (SATA2_2, Blue)
11	USB 2.0 Ports 4,5 (USB4,5)
12	USB 2.0 Port 6 (USB6)
13	Digital I/O Header (JGPIO1)
14	Digital I/O Header PWR Setting (JGPIO_PWR1)
15	System Panel Control Header (PANEL1)
16	Clear CMOS Header (CLRCMOS1)
17	PWR-On mode Setting (PWR_JP1)
18	SPI Flash Memory (16Mb)
19	COM Ports 4,5,6 (COM4,5,6)
20	SET COM Ports 4,5,6 (SET_CM4,5,6)
21	Panel Brightness and Speaker Volume Control (BLT_VOL1)
22	Panel Backlight Inverter connector (BLT_PWR2)
23	Speaker Connector (SPEAKER1)
24	PCI1
25	Front Panel Audio Header (HD_AUDIO1)
26	Panel VDD PWR Setting (PNL_PWR1)
27	Panel Backlight PWR Setting (BKT_PWR1)
28	Bottom Side CF Card PWR Setting (JCFPWR1)
29	Panel Resolution Selection (JLVD_GPIO1)
30	SET COM Port 3 (SET_CM3)

1.4 I/O Panel



1	PS/2 Mouse Port	8	USB 2.0 Ports (USB23)
2	Com Port A (COM1)	9	USB 2.0 Ports (USB01)
3	VGA Port (VGA1)	10	HDMI Port (HDMI1)
* 4	LAN RJ-45 Port	11	RJ-45 Com Port C (COM3)
* 5	LAN RJ-45 Port	12	Com Port B (COM2)
6	Line out (Green)	13	PS/2 Keyboard Port
7	Microphone (Pink)		

* There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

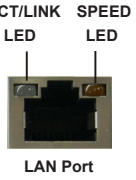
LAN Port LED Indications

Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



Chapter 2: Installation_

This is a Mini-ITX form factor (6.7" x 6.7", 17.0 x 17.0 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.

Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply.
Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 Installation of Memory Modules (SO-DIMM)

IMB-140 motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots.

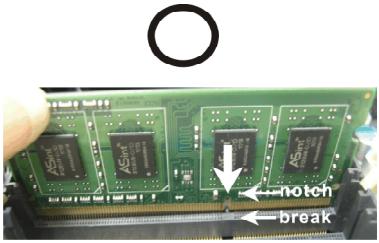
1. It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.
2. Please install the memory module from DDR3_A2 slot for the first priority.

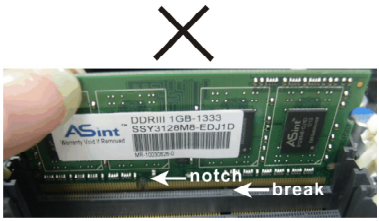
Installing a SO-DIMM

Please make sure to disconnect the power supply before adding or removing SO-DIMMs or the system components.

Step 1. Unlock a SO-DIMM slot by pressing the retaining clips outward.

Step 2. Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.





The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot in the incorrect orientation.

Step 3. Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

2.4 Expansion Slot (PCI Slot)

There is 1 PCI slot on this motherboard.

PCI slot: The PCI slot is used to install an expansion card that has 32-bit PCI interface.

Installing an expansion card

Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

Step 6. Replace the system cover.

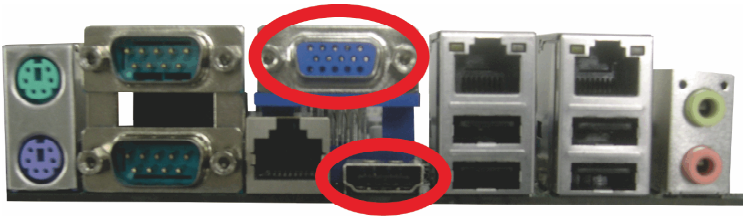
2.5 Dual Monitor Feature

This motherboard supports dual monitor feature. With the internal VGA output support (D-Sub, LVDS and HDMI), you can easily enjoy the benefits of dual monitor feature without installing any add-on VGA card to this motherboard. This motherboard also provides independent display controllers for D-Sub, LVDS and HDMI to support dual VGA output so that D-sub, LVDS and HDMI can drive same or different display contents.

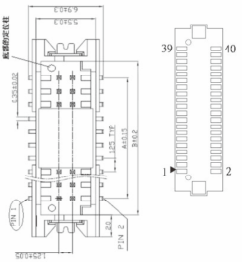
To enable dual monitor feature, please follow the steps below:

1. Connect a D-Sub monitor cable to the D-Sub port on the I/O panel, connect a LVDS monitor cable to the LVDS connector on the motherboard, or connect a HDMI monitor cable to the HDMI port on the I/O panel.

D-Sub port



HDMI port



LVDS Connector

2. If you have installed the onboard VGA driver from our support CD to your system already, you can freely enjoy the benefits of dual monitor after your system reboots. If you haven't installed the onboard VGA driver yet, please install the onboard VGA driver from our support CD to your system and restart your computer.

D-Sub, LVDS and HDMI monitors cannot be enabled at the same time. You can only choose the combination: D-Sub + LVDS, D-Sub + HDMI or LVDS + HDMI.

HDCP Function

HDCP function is supported on this motherboard. To use HDCP function with this motherboard, you need to adopt the monitor that supports HDCP function as well. Therefore, you can enjoy the superior display quality with high-definition HDCP encryption contents. Please refer to below instruction for more details about HDCP function.

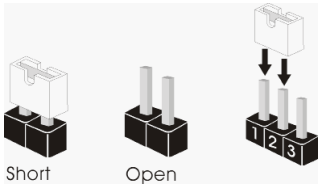
What is HDCP?

HDCP stands for High-Bandwidth Digital Content Protection, a specification developed by Intel® for protecting digital entertainment content that uses the DVI interface. HDCP is a copy protection scheme to eliminate the possibility of intercepting digital data midstream between the video source, or transmitter - such as a computer, DVD player or set-top box - and the digital display, or receiver - such as a monitor, television or projector. In other words, HDCP specification is designed to protect the integrity of content as it is being transmitted.

Products compatible with the HDCP scheme such as DVD players, satellite and cable HDTV set-top-boxes, as well as few entertainment PCs requires a secure connection to a compliant display. Due to the increase in manufacturers employing HDCP in their equipment, it is highly recommended that the HDTV or LCD monitor you purchase is compatible.

2.6 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.

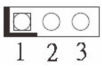


Clear CMOS Jumper
(CLRCMOS1)
(see p.9, No. 16)

Default Clear CMOS

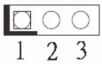
Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

Digital I/O Header PWR Setting
(3-pin JGPIO_PWR1)
(see p.9 No. 14)



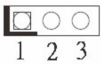
1-2: +12V.
2-3: +5V.

PWR-On Mode Setting
(3-pin PWR_JP1)
(see p.9 No. 17)



1-2: AT Mode.
2-3: ATX Mode.

Panel VDD PWR Setting
(3-pin PNL_PWR1)
(see p.9 No. 26)

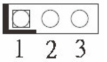


1-2: +3.3V.
2-3: +5V.

Panel BackLight PWR Setting

(3-pin BKT_PWR1)

(see p.9 No. 27)



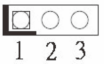
1-2: +5V.

2-3: +12V.

Bottom Side CF Card PWR Setting

(3-pin JCFPWR1)

(see p.9 No. 28)



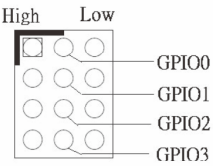
1-2: +3.3V.

2-3: +5V.

Panel Resolution Selection

(12-pin JLVD_GPIO1)

(see p.9 No. 29)



Reserved.

Default set by BIOS.

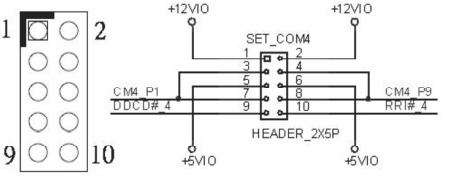
SET COM Ports

(10-pin SET_CM1,2)

(see p.9 No. 1)

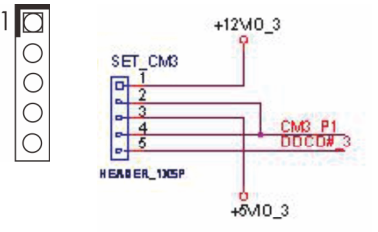
(10-pin SET_CM4,5,6)

(see p.9 No. 20)



(5-pin SET_CM3)

(see p.9 No. 30)



2.7 Onboard Headers and Connectors

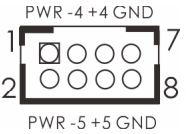
Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

SATA2 Connectors
(SATA2_1: see p.9, No. 8)
(SATA2_2: see p.9, No. 10)

SATA2_1 SATA2_2

These two Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

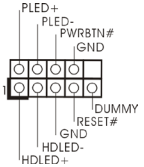
USB 2.0 Ports
(4-pin USB4,5)
(see p.9 No. 11)



(4-pin USB6)
(see p.9 No. 12)

Besides four default USB 2.0 ports on the I/O panel, there are three USB 2.0 ports on this motherboard.

System Panel Header
(9-pin PANEL1)
(see p.9 No. 15)



This header accommodates several system front panel functions.

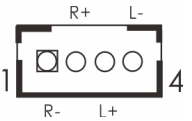
Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).
HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

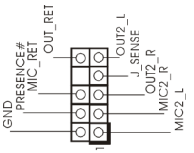
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assign-ments are matched correctly.

Speaker Connector
(4-pin SPEAKER 1)
(see p.9 No. 23)



1: Speaker R-
2: Speaker R+
3: Speaker L+
4: Speaker L-

Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.9 No. 25)



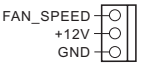
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.
   E. To activate the front mic.
      For Windows® XP / XP 64-bit OS:
      Select "Mixer". Select "Recorder". Then click "FrontMic".
      For Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS:
      Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

Chassis Fan Connector

(3-pin CHA_FAN1)

(see p.9 No. 6)

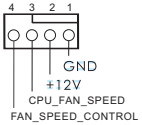


Please connect the fan cable to the fan connector and match the black wire to the ground pin.

CPU Fan Connector

(4-pin CPU_FAN1)

(see p.9 No. 4)



Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

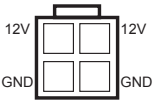
Pin 1-3 Connected

3-Pin Fan Installation

DC 12V Power Connector

(4-pin DC12V1)

(see p.9 No. 3)

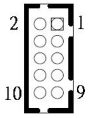


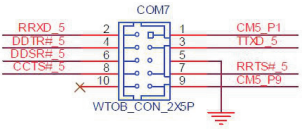
Please connect a DC 12V power supply to this connector.

COM port 4,5,6

(10-pin COM4,5,6)

(see p.9 No. 19)



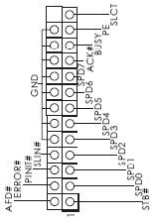


PIN	RS232	RS422	RS485
1	DCD, Data carrier detect	TX-	RTX-
2	RXD, Receive data	RX+	N/A
3	TXD, Transmit data	TX+	RTX+
4	DTR, Data terminal ready	RX-	N/A
5	GND	GND	GND

Printer Port Header

(25-pin LPT1)

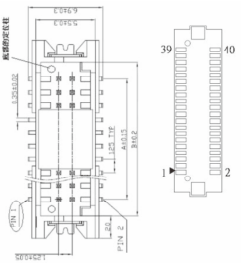
(see p.9 No. 9)



LVDS Con

(40-pin LVDS1)

(see p.9 No. 2)



LVDS Con Pin Define

Pin #	Signal Name	Pin #	Signal Name
1	VDD PWR	2	VDD PWR
3	EDID PWR (3V)	4	EDID_CLK
5	EDID_DAT	6	RXINO0-
7	RXINO0+	8	GND
9	RXINO1-	10	RXINO1+
11	GND	12	RXINO2-
13	RXINO2+	14	GND
15	RXINO3-	16	RXINO3+
17	GND	18	RXOCLKIN-
19	RXOCLKIN+	20	GND
21	RXINE0-	22	RXINE0+
23	GND	24	RXINE1-
25	RXINE1+	26	GND
27	RXINE2-	28	RXINE2+
29	GND	30	RXINE3-
31	RXINE3+	32	GND
33	RXECLKIN-	34	RXECLKIN+
35	GND	36	BackLight EN
37	BackLight PWM	38	BackLight PWR
39	BackLight PWR	40	BackLight PWR

Output Power

(4-pin SATA_PWR1)

(see p.9 No. 7)

1: +5V

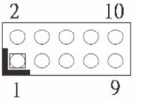
2, 3: GND

4. +12V

Digital I/O Header

(10-pin JGPIO1)

(see p.9 No. 13)

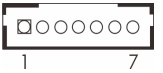


PIN	Signal Name	PIN	Signal Name
1	Digital Output 0	2	Digital Input 0
3	Digital Output 1	4	Digital Input 1
5	Digital Output 2	6	Digital Input 2
7	Digital Output 3	8	Digital Input 3
9	PWR	10	GND

Panel Brightness and Speaker Volume Control

(7-pin BLT_VOL1)

(see p.9 No. 21)

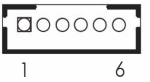


1: Volume_UP
2: Volume_DOWN
3: PANEL PWR Down
4: Panel BackLight UP
5: Panel BackLight Down
6: GND
7: GND

Panel BackLight Inverter connector

(6-pin BLT_PWR2)

(see p.9 No. 22)

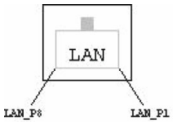


1,2: GND
3: Panel Backlight Control
4: Panel Backlight Enable
5,6: Panel Backlight Power

RJ-45 COM Port C

(8-pin COM Port C)

(see p.10 No. 11)



1: DCD#
2: RXD
3: TXD
4: DTR#
5: GND
6: DSR#
7: RTS#
8: CTS#

2.8 Serial ATA (SATA) / Serial ATA2 (SATA2) Hard Disks Installation

This motherboard adopts Intel® NM10 Express chipset that supports Serial ATA (SATA) / Serial ATA2 (SATA2) hard disks. You may install SATA / SATA2 hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATA2 hard disks.

STEP 1: Install the SATA / SATA2 hard disks into the drive bays of your chassis.
STEP 2: Connect the SATA power cable to the SATA / SATA2 hard disk.
STEP 3: Connect one end of the SATA data cable to the motherboard's SATA2 connector.
STEP 4: Connect the other end of the SATA data cable to the SATA / SATA2 hard disk.

2.9 Hot Plug Function for SATA / SATA2 HDDs

This motherboard supports Hot Plug function for SATA / SATA2 in AHCI mode. Intel® NM10 Express chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed through a joint industry effort.

NOTE

What is Hot Plug Function?

If the SATA / SATA2 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA / SATA2 HDDs while the system is still power-on and in working condition.

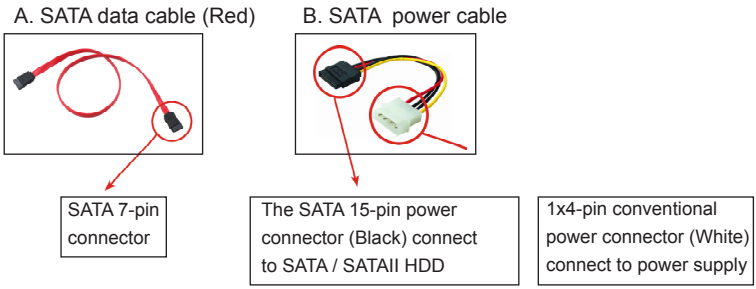
However, please note that it cannot perform Hot Plug if the OS has been installed into the SATA / SATA2 HDD.

2.10 SATA / SATA2 HDD Hot Plug Feature and Operation Guide

This motherboard supports Hot Plug feature for SATA / SATA2 HDDs in AHCI mode. Please read the operation guide below for Hot Plug feature carefully. Before you process SATA / SATA2 HDD Hot Plug, please check the cable accessories below from the motherboard gift box pack.

A. 7-pin SATA data cable

B. SATA power cable with SATA 15-pin power connector interface


A. SATA data cable (Red)
B. SATA power cable
SATA 7-pin connector
The SATA 15-pin power connector (Black) connect to SATA / SATAII HDD
1x4-pin conventional power connector (White) connect to power supply

Caution

1. Without the SATA 15-pin power connector interface, SATA / SATA2 Hot Plug cannot be processed.
2. Some SATA / SATA2 HDDs provide both SATA 15-pin power connector and IDE 1x4-pin conventional power connector interfaces, the conventional IDE 1x4-pin power connector interface is unable to support Hot Plug and will cause the HDD damage and data loss.

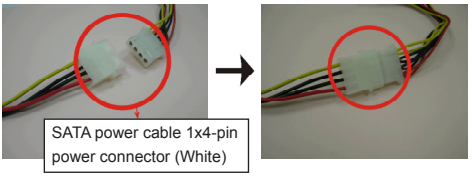
Points of attention, before you process the Hot Plug:

1. The operation procedure below is designed only for our motherboard, which supports SATA / SATA2 HDD Hot Plug.
   * The SATA / SATA2 Hot Plug feature might not be supported by the chipset because of its limitation, SATA / SATA2 Hot Plug support information of our motherboard is indicated in the product spec on our website: www.asrock.com
2. Make sure your SATA / SATA2 HDD can support Hot Plug function from your dealer or HDD user manual. SATA / SATA2 HDDs which cannot support Hot Plug function will be damaged under the Hot Plug operation.
3. Please make sure the SATA / SATA2 driver is installed into your system properly. The latest SATA / SATA2 driver is available on our support website: www.asrock.com
4. Make sure to use the SATA power cable & data cable, which are from our motherboard package.
5. Please follow the instructions below step by step to reduce the risk of HDD crash or data loss.

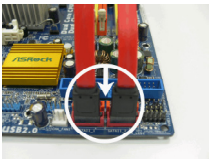
How to Hot Plug a SATA / SATA2 HDD:

Points of attention, before you process Hot Plug:
Please follow the instructions below to process Hot Plug. Improper procedures will cause the SATA / SATA2 HDD damage and data loss.

Step *1* Please connect a SATA power cable 1x4-pin end (White) to the power supply 1x4-pin cable.



Step *2* Connect the SATA data cable to the motherboard's SATA2 connector.



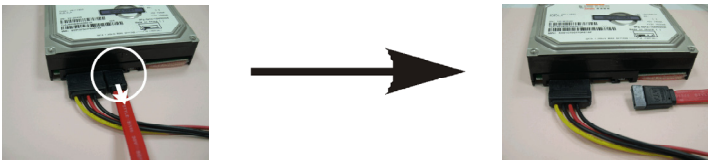
Step *3* Connect the SATA 15-pin power cable connector (Black) end to a SATA / SATA2 HDD.

Step *4* Connect the SATA data cable to the SATA / SATA2 HDD.

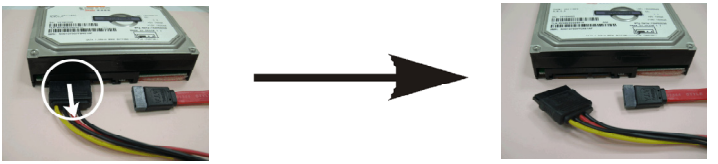
How to Hot Unplug a SATA / SATA2 HDD:

Point for attention, before you process Hot Unplug:
Please follow the instructions below to process Hot Unplug, improper procedures will cause the SATA / SATA2 HDD damage and data loss.

Step *1* Unplug the SATA data cable from the SATA / SATA2 HDD side.



Step *2* Unplug the SATA 15-pin power cable connector (Black) from the SATA / SATA2 HDD side.



2.11 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

2.12 Installing Windows® 7 on SATA / SATA2 HDDs

If you want to install Windows® 7 OS on your SATA / SATA2 HDDs, please follow the steps below.

Using SATA / SATA2 HDDs with NCQ function

STEP 1: Set up UEFI.

A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the option “SATA Mode” to [AHCI].

STEP 2: Install Windows® 7 OS on your system.

Using SATA / SATA2 HDDs without NCQ function

STEP 1: Set up UEFI.

A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the option “SATA Mode” to [IDE].

STEP 2: Install Windows® 7 OS on your system.

Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Main	To set up the system time/date information
OC Tweaker	To set up overclocking features
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Boot	To set up the default system device to locate and load the Operating System
Security	To set up the security features
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use < ← > key or < → > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	To jump to the Exit Screen or exit the current screen

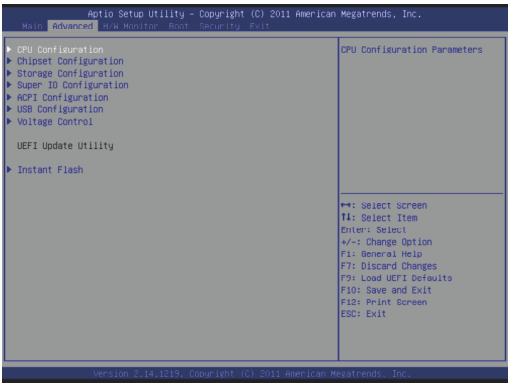
3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced H/W Monitor Boot Security Exit
UEFI Version : IMB-140 L0.17
Processor Type : Intel(R) Atom(TM) CPU D2700 @ 2.13GHz
Processor Speed : 2133MHz
Microcode Update : 30661/10C
Cache Size : 1024KB
Total Memory : 2048MB
DDR3_A1 : None
DDR3_A2 : 2048MB (DDR3-1066)
System Language [English]
System Date [Thu 02/09/2012]
System Time [03:54:56]
Choose the system default language
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration, USB Configuration and Voltage Configuration.

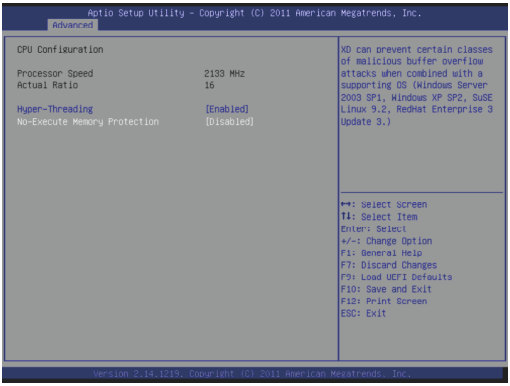


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

3.3.1 CPU Configuration


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
CPU Configuration
Processor Speed 2133 MHz
Actual Ratio 16
Hyper-Threading [Enabled]
No-Execute Memory Protection [Disabled]
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

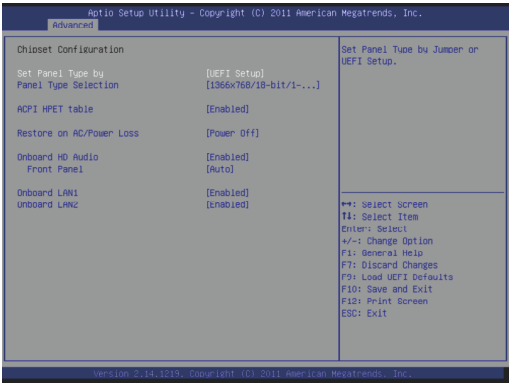
Intel Hyper Threading Technology

To enable this feature, it requires a computer system with an Intel processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® 7. Set to [Enabled] if using Microsoft® Windows® 7.

No-Excute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with “No Execute (NX) Memory Protection” can prevent data pages from being used by malicious software to execute code.

3.3.2 Chipset Configuration



Set Panel Type by

Use this to configure Set Panel Type. The default value is [UEFI Setup].

Panel Type Selection

Use this to select panel type. The default value is [1366x768/18-bit/1-ch/LED].

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Front Panel

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

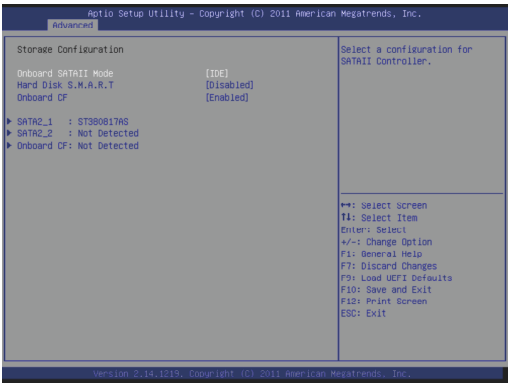
Onboard LAN1

This allows you to enable or disable the “Onboard LAN1” feature.

Onboard LAN2

This allows you to enable or disable the “Onboard LAN2” feature.

3.3.3 Storage Configuration



Onboard SATAII Mode

Use this to select SATA2 mode. Configuration options: [IDE Mode], [AHCI Mode] and [Disabled]. The default value is [IDE Mode].

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

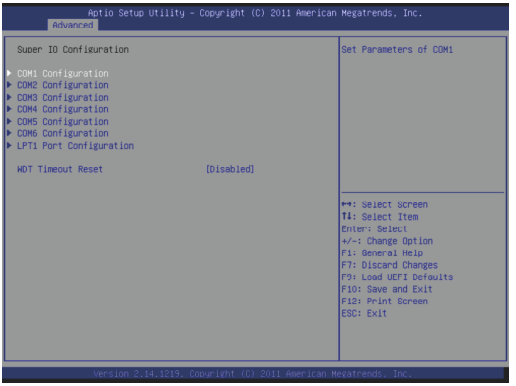
Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

Onboard CF

This allows users to enable/disable the onboard IDE controller for CF. The default value is [Enabled].

3.3.4 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1.

COM2 Configuration

Use this to set parameters of COM2.

COM3 Configuration

Use this to set parameters of COM3.

COM4 Configuration

Use this to set parameters of COM4.

COM5 Configuration

Use this to set parameters of COM5.

COM6 Configuration

Use this to set parameters of COM6.

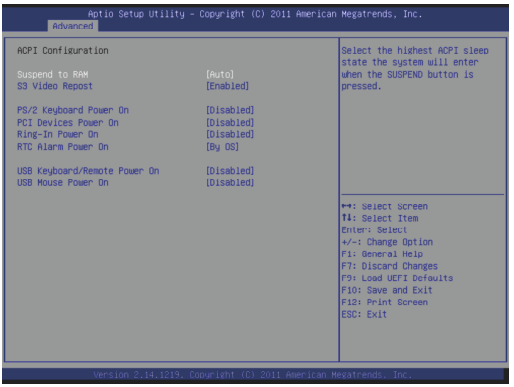
LPT1 Port Configuration

Use this set parameters of the onboard parallel port.

WDT Timeout Reset

This allows users to enable/disable the Watch Dog Timer timeout to reset system. The default value is [Disabled].

3.3.5 ACPI Configuration


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
ACPI Configuration
Suspend to RAM [Auto]
S3 Video Repost [Enabled]
PS/2 Keyboard Power On [Disabled]
PCI Devices Power On [Disabled]
Ring-In Power On [Disabled]
RTC Alarm Power On [By OS]
USB Keyboard/Remote Power On [Disabled]
USB Mouse Power On [Disabled]
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

S3 Video Repost

Use this to enable/disable S3 Video Repost. The default value is [Enabled].

PS/2 Keyboard Power On

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

PCI Devices Power On

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote to power on the system.

USB Mouse Power On

Use this item to enable or disable USB Mouse to power on the system.

3.3.6 USB Configuration

USB 2.0 Controller

Use this item to enable or disable the use of USB 2.0 controller.

Legacy USB Support

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [UEFI Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

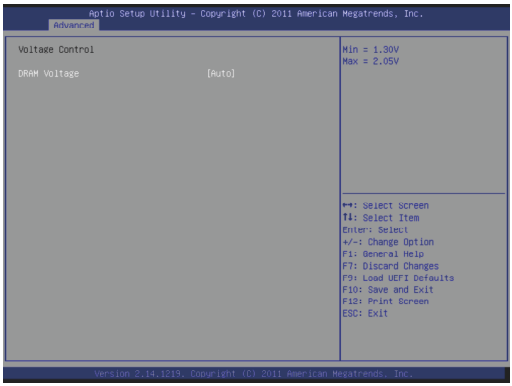
[Disabled] - USB devices are not allowed to use under legacy OS and UEFI setup when [Disabled] is selected. If you have USB compatibility issue, it is recommended to select [Disabled] to enter OS.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

USB Mouse Wheel Support

Use this option to enable or disable USB Mouse Wheel Support. The default value is [Disabled].

3.3.7 Voltage Configuration

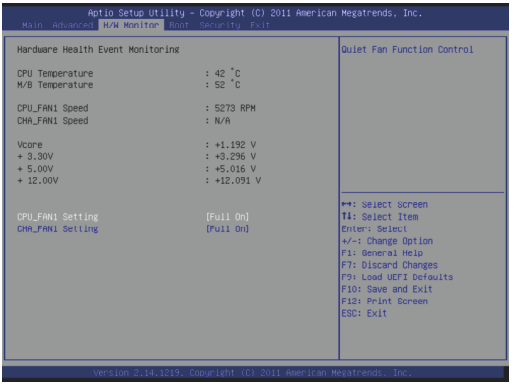


DRAM Voltage

Use this to select DRAM Voltage. The default value is [Auto].

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced H/W Monitor Boot Security Exit
Hardware Health Event Monitoring
CPU Temperature : 42 °C
M/B Temperature : 52 °C
CPU_FAN1 Speed : 5273 RPM
CHA_FAN1 Speed : N/A
Vcore : +1.192 V
+ 3.30V : +3.296 V
+ 5.00V : +5.016 V
+ 12.00V : +12.091 V
CPU_FAN1 Setting [Full On]
CHA_FAN1 Setting [Full On]
Quiet Fan Function Control
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

CPU_FAN1 Setting

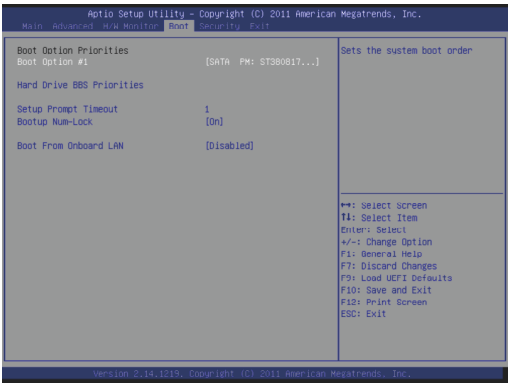
This allows you to set CPU_FAN1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_FAN1 Setting

This allows you to set CHA_FAN1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced H/W Monitor Boot Security Exit
Boot Option Priorities
Boot Option #1 [SATA PM: ST380817...]
Hard Drive BBS Priorities
Setup Prompt Timeout 1
Bootup Num-Lock [On]
Boot From Onboard LAN [Disabled]
Sets the system boot order
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
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Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

Bootup Num-Lock

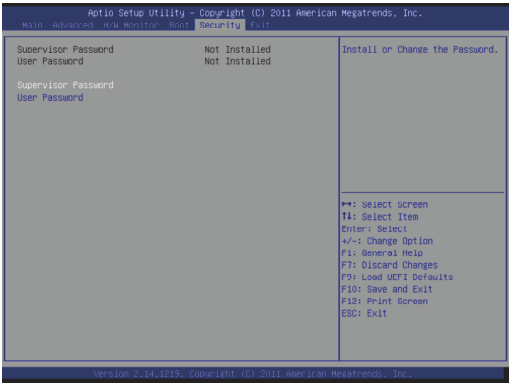
If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Boot From Onboard LAN

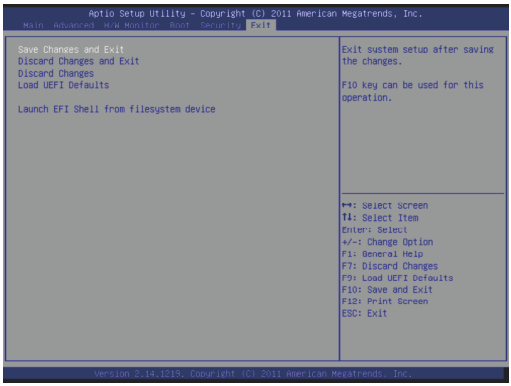
Use this item to enable or disable the Boot From Onboard LAN feature.

3.6 Security Screen

In this section, you may set, change or clear the supervisor/user password for the system.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced H/W Monitor Boot Security Exit
Supervisor Password Not Installed
User Password Not Installed
Supervisor Password
User Password
Install or Change the Password.
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

3.7 Exit Screen


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced H/W Monitor Boot Security Exit
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load UEFI Defaults
Launch EFI Shell from filesystem device
Exit system setup after saving the changes.
F10 key can be used for this operation.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
F12: Print Screen
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Save Changes and Exit

When you select this option, it will pop-out the following message, “Save configuration changes and exit setup?” Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, “Discard changes and exit setup?” Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, “Discard changes?” Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

Chapter 4: Software Support

4.1 Install Operating System

This motherboard supports Microsoft® Windows® operating systems: 7 32-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASSETUP.EXE" from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information.